

In the drawings

Please see the Annotated and Replacement Sheets included herewith.

REMARKS

The specification is objected to because of informalities in the specification on page 1 line 6 after 2001. Applicant has herein amended the specification to formalize the informalities.

The drawings were objected to because in FIG. 2 box elements 202, 210 and 212 should be identified with appropriate legends. Applicant has included herewith replacement sheets intended to bring the drawings into allowance. Included anew in FIG. 2 are legends for box elements 210 and 212. However box element 202 numerically referencing at least one camera has not been modified with a legend due to inconvenience relative to the size of the box element 202. Also included in FIG. 2 is the tip of an arrow showing direction of rotation of rotatable frame 104. In addition, FIG. 3 has been modified to more accurately depict a timing diagram of vacuum nozzle image acquisition and processing during the placement cycle time in accordance with the inventive method. The modifications are intended to bring the depiction of FIG. 3 into more accurate compliance with the specification, so that “as may be seen, image acquisition and processing (calibration) for each vacuum nozzle are always completed within a single pick or place cycle.” (See Specification, page 9, lines 1-3).

Claims 1-11 are pending in the application.

Claims 1-4 are cancelled.

Claims 5-11 are rejected under 35 U.S.C. 102(e and possibly a) as being anticipated by Skunes US Patent No. 6,535,291 and also rejected under 35 U.S.C. 102(e) Skunes US Patent No. 6,744,999 (hereinafter collectively the “Skunes patents”).

Applicant respectfully traverses the rejection of independent claim 5 under the Skunes patents and the rejections should be withdrawn because the Skunes patents do not teach, or suggest, each and every element of independent claim 5, as amended. Specifically, the Skunes

patents do not teach, or suggest, a method for calibrating vacuum nozzle positions in a component placement machine “wherein [a] capturing an image step (e) and [a] calibrating step (f) are accomplished substantially completely *during* at least one of [a] placing step (e) and [a] picking step (c).” While, the Skunes patents teach a placement head 37 having nozzles 62, line scanner 64, and pick up units 84 oriented in an in-line fashion (See FIG. 2 of the Skunes patent), the nozzles must be “lowered through the focal plane” for the methodological step of calibration of the Z-height to substantially occur (See FIG. 3 of the Skunes patents). Accordingly it is not structurally or methodologically possible for the component placement machines of the Skunes patents to substantially completely capture and image and calibrate a nozzle location *during* at least one of placing a component and/or picking up a component. Applicant’s current invention is more advantageous than the configuration in the Skunes patents because the presently claimed structure and design facilitates imaging and/or calibration concurrent with picking and/or placing. Accordingly, Applicant’s claimed invention provides a more efficient apparatus and method.

Based on the preceding arguments, Applicant respectfully maintains that the Skunes patents do not anticipate claim 5, as amended, and that claim 5 is in condition for allowance.

Since claims 6-11 depend from claim 5, Applicant contends that claims 6-11 are likewise in condition for allowance.

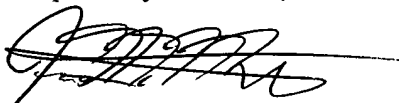
With respect to the provisionally rejected claims 5 and 7-11 applicant provides herewith a timely filed terminal disclaimer as the cited application is commonly owned with this application.

CONCLUSION

Based on the preceding amendments, Applicant respectfully submits that claims 5-11 and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes anything further would be helpful to place the application in better condition for allowance, Applicant invites Examiner to contact Applicant's representative at the telephone number listed below. The Director is hereby authorized to charge and/or credit Deposit Account 19-0513.

Date: 10/13/05

Respectfully submitted,



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Annotated sheet

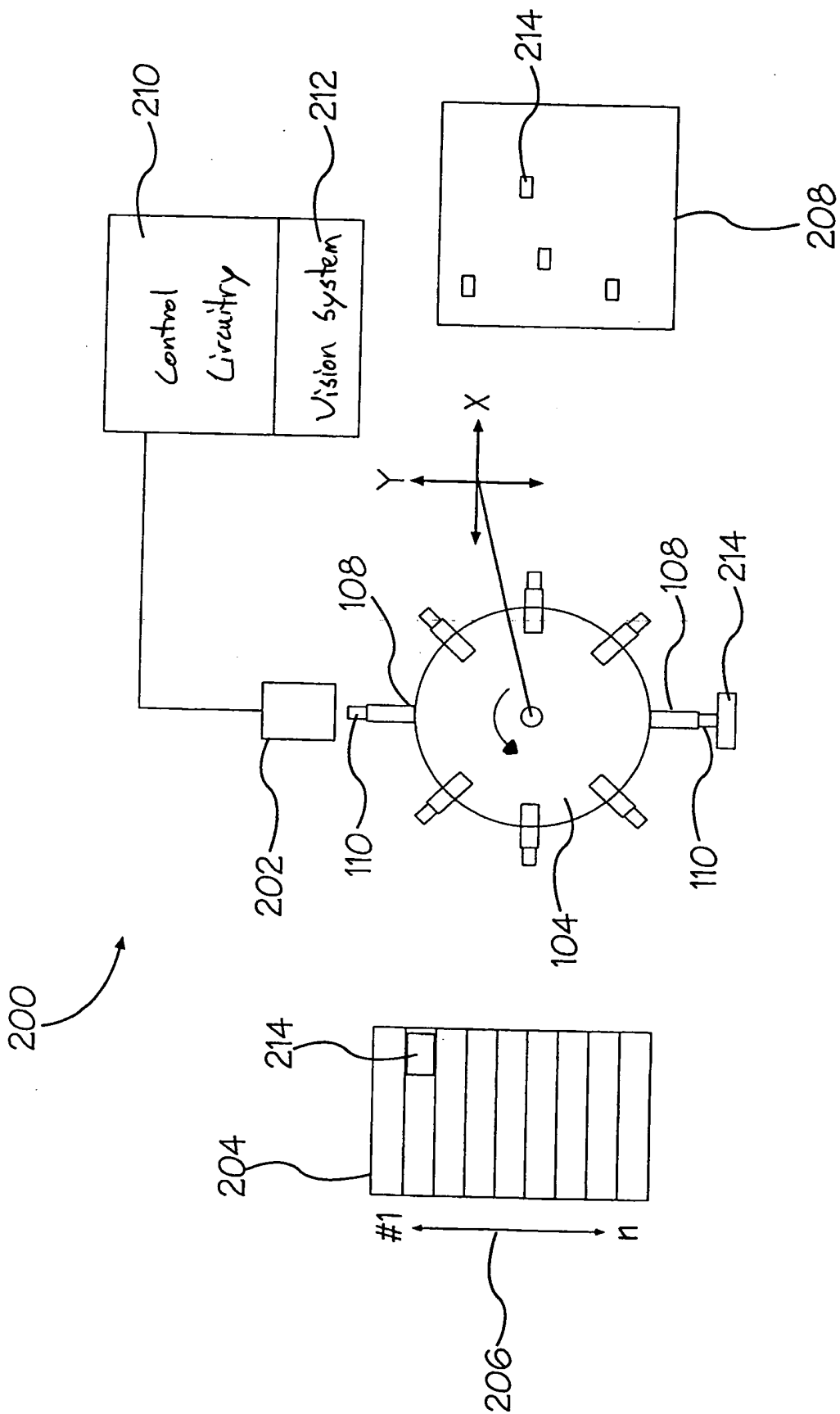


Figure 2

Figure 3 is a Gantt chart illustrating the timing of a placement cycle for multiple spindles. The vertical axis represents the Spindle Number (1, 2, ..., N, N+1, ..., N+M), and the horizontal axis represents Time. A central box labeled "Constant Placement Cycle Time for Spindles 1->N+M" indicates a fixed duration. The cycle for each spindle consists of "Pick Cycle", "Acquire", "Process", and "Place Cycle" steps. Handwritten notes indicate that the "Place Cycle" for spindle N+1 is "moved slightly backward" and the "Acquire" and "Process" steps for spindle N+1 are "moved slightly forward".

Figure 3